

# ICE JAMS



## ***How Do Ice Jams Form?***

## ***Where Do Ice Jams Form?***

## ***What Can My Family Do:***

### ***\*\* To Be Prepared***

#### ***\*\* When Ice Jams or Flooding Happen***

#### ***\*\* After the Emergency Has Passed***

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## ***How Do Ice Jams Form?***

Water freezes, right? Sounds simple. But the actual formation of ice jams can happen a couple of ways.

Ice forms in streams and lakes whenever the surface of the water cools to freezing. When the accumulation of ice begins to restrict the flow of water, ice jams may form. This happens in two ways:

### ***freeze-up and break-up***

**Freeze-up jams** occur early to mid-winter and are made up of slush ice that freezes in place.

**Break-up jams** occur during periods of thaw and are made up of broken pieces of ice from the breaking-up of solid, surface ice.

When water is forced out from under the ice, and flows over the top, it freezes and forms even thicker ice.

Heavy **snowfall** on thick ice can keep it insulated from the sun or warmer air temperatures, so that it will not melt as easily. In some cases, early in the season when it is warmer, snowfall can insulate the river ice and stop ice growth. Light snowfall with cold air temperatures can freeze on thinner ice increasing the thickness. **Rainfall and runoff** can increase the amount of water, and flooding can occur when the water is displaced by the ice.

**Preparedness:  
Safety, Security, Memories**



- Keep all important papers and special family items in water-tight containers (like large plastic tubs with lids), and move them to storage on the second floor.
- Put an evacuation kit together including a list of all family medications, with prescribed dosage and the name of the prescribing doctor ; water; food; dry clothes; flashlight; radio; batteries; and first aid kit.
- Identify sites where an ice jam could occur and where flooding has occurred before.
- Remove hazardous materials and chemicals from areas that have flooded or might flood; this makes recovery much safer.
- Make an evacuation plan with your family - who will take what; how will you leave; where will you meet if you are separated.
- Know your neighbors: are there elderly or disabled folks who might need your help, or someone with a 4X4 truck or backhoe to help?  
Phone # \_\_\_\_\_  
Phone # \_\_\_\_\_
- Collect flood-fighting materials: sandbags and sand, plywood, plastic sheeting, and lumber.

**Response:  
Keeping the Family Together  
SAFETY FIRST**

- Listen to radio and television for ice jam or flood alerts.
- Monitor the temperature, water levels, and ice condition **AS SAFELY AS POSSIBLE**.
- Keep the most reliable, bad-weather vehicle fueled; make sure there's an emergency kit in that vehicle at all times, including fresh water.
- Move livestock, feed and equipment to higher ground.



- Get pets ready for evacuation - food, water, leashes and / or carryalls
- Dress warmly and in layers; make sure to take dry clothes in your evacuation kit.
- Turn off electricity, gas and water.

During evacuation **DO NOT** cross low-lying areas or running water; it is **ALWAYS** faster and deeper than it looks!

**NEVER FIGHT A FLOOD ALONE!**

Do not become a spectator; ice can move very suddenly and emergency personnel need room to work!

## Recovery: A Place to Come Home To

- Do not turn gas back on yourself
- Tune into the radio for information on shelters, medical assistance, and disaster assistance.



- Take photographs or video tapes of all damage - inside and out.
- Remove and haul off or stack all damaged articles; remove wet carpets and rugs.
- Use bottled water until your well or water source has been tested.

### To dry out your home:

- Cut wet sheet rock 4 inches above the water line.
- Remove all electrical outlet covers for air-flow.
- Open closets, cabinets, vents, move appliances, open attic and crawl spaces
- Do not turn heat up to HIGH; dry at low even temperatures.
- Treat dried areas with trisodium phosphate to prevent mold development.

- If you have flood insurance, notify your agent that you have a loss.

Phone #: \_\_\_\_\_

- If basement is flooded, pump out slowly; walls may collapse or floors buckle if surrounding ground is still water-logged.

## Mitigation: Reducing Future Problems: So Now You Know!

Disaster and emergency management agencies call this phase "Mitigation". Basically it means that you probably learned some lessons from the present ice jam or flooding event. Now let's put those lessons to good use.

- List materials and supplies you wished you would have had; obtain and store in a safe place as soon as reasonable.
- Identify new areas of flooding, or constricted stream or creek channels where ice jams may form during the rest of the winter or during the snow melt. Move everything you can out of harms way.
- Avoid rip rap for streambank protection. Rip rap confines the channel, trapping ice and debris, and then can be washed away when the jam finally moves, increasing your costs.
- Avoid paving surfaces which will drain to the creek; this increases runoff, raising water levels, and possibly moving ice into jams.
- Update your list of phone numbers for neighbors, emergency assistance, contractors, and **suppliers**.



## ***Where Do Ice Jams Form?***

It's fairly easy to identify where ice jams may form.

### **Flat stream slope:**

Where the slope of the river or stream flattens out there is not enough slope for gravity to move the ice further;

### **Narrowed channel:**

Where the river or stream channel is naturally narrow, or where the stream has been mechanically channelized and hardened with rip rap, or wherever there are bridges or other installations, and where there are no natural flood plains;

### **Down-stream of open water:**

Where there is open water which may continually form and contribute ice to the creek, these pieces can accumulate in narrow places downstream;

### **Flood plains:**

Flood plains are the natural place for floating ice and debris to fall out. If structures are built in or near the flood plain you can expect eventually to deal with flooding and possibly ice and debris build up.



## ***More Information On Ice Jams and Flooding***

### **To report an Ice Jam or Flooding:**

Place label for local disaster services office

**State Hazard Mitigation Office  
Disaster and Emergency Services  
406 - 841 - 3911**

For information on contractors:  
**State Consumer Affairs Office  
Dept. of Commerce  
406 - 444 - 4311**

**National Weather Service  
Radio Frequencies**  
Billings, Butte, Great Falls, Kalispell  
& Glasgow  
162.550  
Havre, Helena, Miles City, Missoula  
162.400  
Plentywood  
162.475

**Flood Watch** - Flooding is possible within the designated WATCH area.

**Flood Warning** - Flooding is reported or imminent; take action at once.